

WHAT IS CLAIMED IS:

1. A surface coating solution comprising:
a surface coating base; and
boehmite particles provided in the surface coating base, the boehmite particles comprising mainly anisotropically shaped particles having an aspect ratio of at least 3:1.
2. The surface coating solution of claim 1, wherein the surface coating base is a water-based solution.
3. The surface coating solution of claim 2, wherein the water-based solution further comprises polymers in an emulsion, the surface coating solution being latex paint.
4. The surface coating solution of claim 3, wherein the latex paint comprises an acrylic.
5. The surface coating solution of claim 1, wherein the surface coating solution has flow and leveling of at least about 6 mils.
6. The surface coating solution of claim 1, wherein the surface coating solution has a sag resistance greater than about 7 mils.
7. The surface coating solution of claim 6, wherein the surface coating solution has a sag resistance between about 7 and 12 mils.
8. The surface coating solution of claim 1, wherein the surface coating solution is essentially free of associative thickener.
9. The surface coating solution of claim 1, wherein the boehmite particles constitute between about 0.1% and 20% by weight of the surface coating solution.

10. The surface coating solution of claim 9, wherein the boehmite particles constitute between about 0.5% and 10% by weight of the surface coating solution.
11. The surface coating solution of claim 10, wherein the boehmite particles constitute between about 0.5% and 2% by weight of the surface coating solution.
12. The surface coating solution of claim 1, wherein the surface coating solution has a set-to-touch dry time less than about 30 minutes.
13. The surface coating solution of claim 1, wherein the boehmite particles have a longest dimension of at least about 50 nanometers.
14. The surface coating solution of claim 13, wherein the boehmite particles have a longest dimension of between 100 and 1000 nanometers.
15. The surface coating solution of claim 1, wherein said aspect ratio is not less than about 6:1.
16. The surface coating solution of claim 1, wherein the boehmite particles have a secondary aspect ratio of not greater than about 3:1.
17. The surface coating solution of claim 1, wherein the boehmite particles have a surface area as measured by the BET technique of at least 10 m²/g.
18. The surface coating solution of claim 17, wherein the boehmite particles have a surface area as measured by the BET technique of at least 75 m²/g.
19. The surface coating solution of claim 18, wherein the boehmite particles have a surface area as measure by the BET technique between about 100 and about 350 m²/g.
20. The surface coating solution of claim 1, wherein the surface coating solution recovers 80% of low shear viscosity in less than about 15 seconds.

21. The surface coating solution of claim 1, wherein the pH of the solution is greater than 7.0.

22. A surface coating solution comprising boehmite particles comprising mainly anisotropically shaped particles having an aspect ratio of at least about 3:1 and a longest dimension of at least 50 nanometers.

23. The surface coating solution of claim 22, wherein the surface coating solution has flow and leveling greater than about 6 mils.

24. The surface coating solution of claim 22, wherein the surface coating solution has a sag resistance of at least 7 mils.

25. The surface coating solution of claim 22, wherein the surface coating solution is essentially free of associative thickener.

26. The surface coating solution of claim 22, wherein the boehmite particles constitute between about 0.5% and 2% by weight of the surface coating solution.

27. The surface coating solution of claim 22, wherein the surface coating solution has a set-to-touch dry time less than about 30 minutes.

28. The surface coating solution of claim 22, wherein the boehmite particles have a longest dimension of between 100 and 1000 nanometers.

29. The surface coating solution of claim 22, wherein the boehmite particles have at least a 6:1 aspect ratio.

30. The surface coating solution of claim 22, wherein the boehmite particles have a secondary aspect ratio of no more than about 3:1.

31. The surface coating solution of claim 22, wherein the boehmite particles have a surface area as measured by the BET technique of at least 10 m²/g.

32. The surface coating solution of claim 31, wherein the boehmite particles have a surface area as measured by the BET technique of at least $75 \text{ m}^2/\text{g}$.

33. The surface coating solution of claim 32, wherein the boehmite particles have a surface area as measured by the BET technique between about 100 and about $350 \text{ m}^2/\text{g}$.

34. The surface coating solution of claim 22, wherein the surface coating solution recovers 80% of low shear viscosity in less than about 15 seconds.

35. A method of forming a surface coating preparation, the method comprising:

activating boehmite particles to form an active solution, the boehmite particles comprising mainly anisotropically shaped particles;
forming a grind solution using the active solution; and
forming a coating preparation using the grind solution.

36. The method of claim 35, wherein activating boehmite particles results in the active solution having shear thinning rheology.

37. The method of claim 35, wherein activating boehmite particles comprises adding a base.

38. The method of claim 37, wherein the base is ammonium hydroxide.

39. The method of claim 35, wherein activating boehmite particles comprises increasing pH of the active solution to at least 7.0.

40. The method of claim 35, wherein activating boehmite particles comprises adding particles having a charge opposite to that of the boehmite particles.

41. The method of claim 35, wherein forming the grind solution comprises adding a pigment.

42. The method of claim 35, wherein activating boehmite particles comprises adding a salt.

43. The method of claim 35, wherein the mainly anisotropically shaped particles have an aspect ratio of at least about 3:1.

44. The method of claim 35, wherein the coating preparation has flow and leveling greater than about 6 mils.

45. The method of claim 35, wherein the coating preparation has sag resistance of at least 7 mils.

46. The method of claim 35, wherein the coating preparation is essentially free of associative thickener.

47. The method of claim 35, wherein the boehmite particles comprise between about 0.5% and 2% by weight of the coating preparation.

48. The method of claim 35, wherein the coating preparation has a set-to-touch dry time less than about 30 minutes.

49. The method of claim 35, wherein the boehmite particles have a longest dimension of at least about 50 nanometers.

50. The method of claim 35, wherein the boehmite particles have a surface area as measured by the BET technique of at least $10 \text{ m}^2/\text{g}$.

51. The method of claim 35, wherein the coating preparation recovers 80% of low shear viscosity in less than about 15 seconds.

52. A surface coating preparation formed by the method of claim 35.